CLASSIFICATION CONFIDENTIAL CONFIDENTIAL

50X1-HUM

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR	DATE OF INFORMATION	1948
SUBJECT	Scientific - Geophysics, hydrology	DATE DIST.	23 Apr 1951
HOW PUBLISHED	Book		
WHERE PUBLISHED	Leningrad	NO. OF PAGES	4
DATE PUBLISHED	1948	SUPPLEMENT TO REPORT NO.	
LANGUAGE	Russian		

THIS IS UNEVALUATED INFORMATION

SOURCE Gidrologiya Sushi, Gidrometeoizdat, 526 pp

50X1-HUM

FOREWORD AND TABLE OF CONTENTS OF "HYDROLOGY" BY M. A. VELIKANOV

The following presents the foreword and table of contents of the above book:

This is the fourth edition of this book; and it has been considerably supplemented and revised in comparison with the preceding issues. The book discusses general problems of hydrology as a science, elements of the water balance, the morphology and regime of rivers, lakes, and swamps, the statistical method in hydrology, the mechanism of surface runoff, and river runoff, sediments, and bedding processes.

The book has been approved by the Ministry of Higher Education as a text for state universities and higher hydrometeorological schools. At the same time, it may prove useful for engineering hydrologists and for persons who are preparing for scientific work in the field of hydrology.

TABLE OF CONTENTS

	Page
Preface to the Fourth Edition	6
I. Introduction	
1. Hydrology as a Science	7
2. A Brief Historical Survey	12
3. Hydrological Cycle in Nature	20
4. Surface of a Continent	25
5. Runoff	28
6. Erosion and Accumulation	31

CLASSIFICATION CONFIDENTIAL

STATE	X	NAVY	X	NSRB		DISTRIBUTION													
ARMY	X	AIR	X	FBI															

		Page
II.	Precipitation and Condensation	
1.	Distribution of Precipitation on the Earth's Surface	39
2.	Shower Precipitation	46
3.	Soil Condensation	54
4.	Snow Cover	55
5.	Spring Thawing	64
6.	Glaciers	73
III.	Evaporation	
1.	Physical Nature of Evaporation	78
2.	Evaporation From Large Reservoirs	80
3.	Evaporation From Soil	85
4.	Transpiration	88
IV.	Subterranean Waters	
1.	Formation of Subterranean Waters	91
2.	Classification of Soils	94
3.	Infiltration	99
4.	Three Phases of Movement of Subterranean Waters	106
5.	Ground Water	110
6.	Waters of Fissured Rocks	119
7.	Waters Under Pressure	121
8.	Heat Conditions of Ground Waters	123
9.	Outflow to the Surface	126
V.	Rivers	
1.	River Valleys	135
2.	River Systems	139
3.	The River Bed	144
4.	Farg's Morphological Dependency	148
5.	Regime of River Levels	151
6.	River Cross Sections	154
7.	Longitudinal Profile of a River	159
8.	Transverse Slope of a River	162
9.	Water Discharge	164
10.	River Estuaries	167
11.	Ice Cover	168
12.	Mountain Rivers	189
VI.	Lakes and Swamps	
1.	Classification of Lakes	192
2.	Component Parts of Lakes	196
3.	Morphometry of a Lake	198
4.	Water Movement in Lakes	199
5.	Heat Conditions of Lakes	206
6.	Swamps	209
VII.	Water Balance	
1.	The Basic Equation	212
2.	Total Evaporation From a River Basin	216
3.	Water Balance of Lakes	223
4.	Water Balance of the Lower Volga	227
5.	Base Hydrological Network	230

		Page
VIII.	The Statistical Method in Hydrology	
1.	Regular and Chance Hydrological Phenomena	233
2.	Basic Concepts and Principles	238
3.	Binomial Distribution	241
4.	Distribution Functions of Continuous Variables	244
5.	Normal Distribution	249
6.	Pearson Distribution	252
7.	Generalization of the Pearson Distribution	258
8.	Curve of Assurance (Integral of the Distribution Curve)	262
9.	Averaging	268
10.	Correlation	270
IX.	Mechanism of Surface Runoff	
1.	Two Types of Fluid Motion (Laminar and Turbulent)	276
2.	Dimensional Analysis	283
3.	Velocity Pulsations	289
4.	Turbulent Mixing	295
5.	General Equations of Hydrodynamics	299
6.	The Lorentz Equation	302
7.	Profile of Averaged Velocities	307
8.	Distribution of Velocities in River Flow	313
9.	Transverse Circulation	323
10.	Flood Movement	327
11.	Slope Runoff	333
12.	Glacier Movement	337
X.	Stream Flow	
1.	Methods of Studying Stream Flow	340
2.	Size and Topography of the Drainage Area	343
3.	Physicogeographical Runoff Factors	346
4.	Climatic Types of Runoff Distribution	365
5.	Average Perennial Runoff	378
6.	Yearly Deviations From the Norm	385
7.	High Water Caused by Snow Thaw	394
8.	Shower Runoff	409
9.	Minimum Runoff	416
XI.	Sediments	
1.	Formation of Sediments	419
2.	Geometric and Hydraulic Size of Sediments	423
3.	Action of the Current Upon Loose Particles on the Bottom	427
4.	Movement of Sediments in the Layer Next to the Bottom	433
5.	Solid Discharge of Bottom Sediments	437
6.	Movement of Sediments in the Main Current	443
7.	Gravitational Theory of Suspensions	449
8.	Transporting Capacity of the Current	461
9.	Settling of Sediments	465
10.	Solid Discharge of Rivers	469
XII.	Bedding Processes	
1.	General Equation for Deformation of the Bottom	476
2.	Sand Waves	479
3.	Interaction of the Current and Bed	482

	Page
4. Morphometric Characteristics of Lowland Rivers	487
5. Mobility of the River Bed	492
6. Formation of Sandbars and Stretches of Water	500
7. Erosion Currents	510
Conclusion	519
Bibliography	522
Subject Index	524
Author Index	528

- E N D -